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Editorial

# Multimodal Imaging in Transcatheter Aortic Valve Replacement

Áurea J. Chaves

The performance of different imaging modalities in patients undergoing transcatheter aortic valve replacement is essential for patient selection, in order to guide the procedure, and to detect and quantify acute and chronic complications of this new intervention. Proper sizing of the aortic valve annulus is one of the most important steps to accurately select prosthesis size and prevent paravalvular aortic regurgitation. In this issue of the **Brazilian Journal of Invasive Cardiology (RBCI)**, Magalhães, Waksman, and Pichard, from the MedStar Washington Hospital Center (Washington, DC, United States), discuss in their editorial the impact of aortic regurgitation on mortality after transcatheter aortic valve replacement, the evidence of this association, and the methodological limitations that can attenuate the establishment of a direct causal association. They comment the article by Lluberas et al., from Instituto Dante Pazzanese de Cardiologia (São Paulo, SP, Brazil), which assessed the incidence, clinical impact, and predictors of paravalvular regurgitation after transcatheter aortic valve replacement in the largest national series of this procedure. They recall the importance of preventive measures, such as selecting the most appropriate size and type of prosthesis for each patient, and the contribution that multimodal imaging analysis has brought to aortic annulus measurement. They mention that a fourth dimension, i.e., time, was added to annulus evaluation, as variability in the size of this structure has been observed in the different phases of the cardiac cycle.

In another editorial that emphasizes the importance of methodical assessment of cardiac structures before percutaneous therapeutic procedures, Henri Justino, from Texas Children's Hospital (Houston, United States), highlights that a better understanding of the interatrial septum anatomy is critical for the proper selection of patients in the transcatheter closure of atrial septal defects such as *ostium secundum*. He analyzes the article by Ribeiro et al., from Instituto Dante Pazzanese de Cardiologia (Sao Paulo, SP, Brazil), who evaluated the feasibility, safety, and the efficacy of this intervention in children weighing < 20 kg. He analyzes on how a thorough evaluation of edges and length of the septum, as well as the detection of multiple fenestrations in patients with indication for early closing, is important in order to obtain a high success rate of the procedure and minimum complications. Justino concluded that a careful percutaneous approach must do more than just prevent the patient from bearing a scar, by providing safety at least equal to that of the traditional surgical approach.

Original studies of great interest have also been published in this issue. Collet et al., from Cardiovascular Research Center of Caracas (Caracas, Venezuela), present the results of a multicentre registry on sympathetic denervation for the control of renal resistant arterial hypertension using the Symplicity® dedicated catheter. By applying radiofrequency energy to the kidney artery, they were able to significantly reduce systolic blood pressure 30 days after the procedure, with no adverse events, in patients using at least three antihypertensive medications. Bernardi et al., from Hospital do Coração da Associação do Sanatório Sírio (São Paulo, SP, Brazil) bring a new contribution to the DESIRE registry, this time with very late results of drug-eluting stent use in saphenous vein grafts. They demonstrate that, despite the unquestionable benefits of drug-eluting stents on late results in complex patients, treating saphenous vein graft lesions in still a challenge, with less favorable acute and late results when compared to lesions in native vessels. Pavão et al., from Hospital das Clínicas da Faculdade de Medicina de Ribeirão Preto (Ribeirão Preto, SP, Brazil), assessed the control of cardiovascular disease risk factors in patients treated by percutaneous coronary intervention. Secondary prevention after these procedures is a crucial subject, overlooked by many, and essential to modifying the prognosis of patients with cardiovascular disease. They achieved their goals in the index hospitalizatiom, which were maintained over time, identifying a window of opportunity to prioritize the control of risk factors.

Other important articles complement this issue, addressing the late outcome after percutaneous coronary intervention in kidney transplant recipients; hospital outcomes of primary percutaneous coronary intervention versus rescue intervention; the impact of ischemia and myocardial viability after the treatment of chronic coronary occlusion in the proximal segment of the left anterior descending artery; the influence of calcium score on the severity of moderate coronary

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lesions assessed by intravascular ultrasound; the results of stenting in the carotid and vertebral arteries; and the results of cerebral embolic protection devices, assessed by diffusion-weighted magnetic resonance imaging in elderly patients during carotid stenting.

Finally, Botrel et al., associated with Brazilian Society of Haemodynamics and Interventional Cardiology, performed a systematic review of the literature on transcatheter biological pulmonary valve implantation in patients with allograft dysfunction, valved conduits and bioprostheses surgically implanted in the right ventricular outflow tract. They demonstrated that the procedure is safe and effective, and is associated with good immediate and medium-term evolution. They recall that the procedure is highly complex and should be performed by surgeons experienced in the percutaneous treatment of congenital heart diseases after specific training.

Enjoy your reading!

**Áurea J. Chaves**
Editor